

SEQUENCE LISTING

<110> WOULFE, SUSAN L.  
JAIN, RITA  
BURR, AIMEE

<120> ENGINEERED FAB' FRAGMENT ANTI-TUMOR  
NECROSIS FACTOR ALPHA IN COMBINATION WITH DISEASE MODIFYING  
ANTI-RHEUMATIC DRUGS

<130> 122294-1010

<140>

<141> 2003-12-05

<150> US 60/431,053

<151> 2002-12-05

<160> 40

<170> FastSEQ for Windows Version 4.0

<210> 1  
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<212> PRT  
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<220>  
<223> hTNF40 CDRH1

<400> 1  
Asp Tyr Gly Met Asn  
1 5

<210> 2  
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<223> hTNF40/human hybrid CDRH2

<400> 2  
Trp Ile Asn Thr Tyr Ile Gly Glu Pro Ile Tyr Ala Asp Ser Val Lys  
1 5 10 15  
Gly

<210> 3  
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<212> PRT  
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<220>  
<223> hTNF40 CDRH3

<400> 3  
Gly Tyr Arg Ser Tyr Ala Met Asp Tyr  
1 5

<210> 4  
<211> 11  
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<220>  
<223> hTNF40 CDRL1

<400> 4  
Lys Ala Ser Gln Asn Val Gly Thr Asn Val Ala  
1 5 10

<210> 5  
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<220>  
<223> hTNF40 CDRL2

<400> 5  
Ser Ala Ser Phe Leu Tyr Ser  
1 5

<210> 6  
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<223> hTNF40 CDRL3

<400> 6  
Gln Gln Tyr Asn Ile Tyr Pro Leu Thr  
1 5

<210> 7  
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<212> PRT  
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<220>  
<223> hTNF40 CDRH2

<400> 7

Trp Ile Asn Thr Tyr Ile Gly Glu Pro Ile Tyr Val Asp Asp Phe Lys  
1 5 10 15  
Gly

<210> 8  
<211> 321  
<212> DNA  
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<221> CDS

<222> (1) ... (321)  
<223> hTNF40-gL1

<223> hTNF40-gL1

<400> 8  
gac att caa atg acc cag agc cca tcc agc ctg agc gca tct gta gga 48  
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
1 5 10 15

gac cgg gtc acc atc act tgt aaa gcc agt cag aac gta ggt act aac 96  
Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asn Val Gly Thr Asn  
20 25 30

gta gcc tgg tat cag caa aaa cca ggt aaa gcc cca aaa gcc ctc atc 144  
Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Ala Leu Ile  
35 40 45

tac agt gcc tct ttc ctc tat agt ggt gta cca tac agg ttc agc gga 192  
Tyr Ser Ala Ser Phe Leu Tyr Ser Gly Val Pro Tyr Arg Phe Ser Gly  
50 55 60

tcc ggt agt ggt act gat ttc acc ctc acg atc agt agc ctc cag cca 240  
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro  
65 70 75 80

gaa gat ttc gcc act tat tac tgt caa cag tat aac atc tac cca ctc 288  
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ile Tyr Pro Leu  
85 90 95

aca ttc ggt cag ggt act aaa gta gaa atc aaa 321  
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys  
100 105

<210> 11  
<211> 354  
<212> DNA  
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<220>  
<221> CDS  
<222> (1) ... (354)

<223> gh3hTNF40.4

<223> Grafted Heavy Chain for Modified Fab

<400> 11  
gag gtt cag ctg gtc gag tca gga ggc ggt ctc gtg cag cct ggc gga 48  
Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15  
  
tca ctg aga ttg tcc tgt gct gca tct ggt tac gtc ttc aca gac tat 96  
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Tyr Val Phe Thr Asp Tyr  
20 25 30  
  
gga atg aat tgg gtt aga cag gcc ccg gga aag ggc ctg gaa tgg atg 144  
Gly Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Met  
35 40 45  
  
ggg tgg att aat act tac att gga gag cct att tat gct gac agc gtc 192  
Gly Trp Ile Asn Thr Tyr Ile Gly Glu Pro Ile Tyr Ala Asp Ser Val  
50 55 60  
  
aag ggc aga ttc acg ttc tct cta gac aca tcc aag tca aca gca tac 240  
Lys Gly Arg Phe Thr Phe Ser Leu Asp Thr Ser Lys Ser Thr Ala Tyr  
65 70 75 80  
  
ctc caa atg aat agc ctg aga gca gag gac acc gca gtg tac tat tgt 288  
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95  
  
gct aga gga tac aga tct tat gcc atg gac tac tgg ggc cag ggt acc 336  
Ala Arg Gly Tyr Arg Ser Tyr Ala Met Asp Tyr Trp Gly Gln Gly Thr  
100 105 110  
  
cta gtc aca gtc tcc tca 354  
Leu Val Thr Val Ser Ser  
115

<210> 83

<211> 23

<212> PRT

<213> Artificial Sequence

<220>  
<223> human group 1 consensus framework L1

<400> 83  
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
1 5 10 15  
Asp Arg Val Thr Ile Thr Cys  
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<210> 84

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> hTNF40 framework L1

<400> 84

Asp	Ile	Val	Met	Thr	Gln	Ser	Gln	Lys	Phe	Met	Ser	Thr	Ser	Val	Gly
1					5					10				15	
Asp	Arg	Val	Ser	Val	Thr	Cys									
					20										

<210> 85

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> human group 1 consensus framework L2

<400> 85

Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile	Tyr
1					5				10				15	

<210> 86

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> hTNF40 framework L2

<400> 86

Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Lys	Ala	Leu	Ile	Tyr
1					5				10				15	

<210> 87

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> human group 1 consensus framework L3

<400> 87

Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr
1					5				10				15		
Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro	Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys
					20				25				30		

<210> 88

<211> 32

<212> PRT

<213> Artificial Sequence

<220>  
<223> hTNF40 framework L3

<400> 88  
Gly Val Pro Tyr Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr  
1 5 10 15  
Leu Thr Ile Ser Thr Val Gln Ser Glu Asp Leu Ala Glu Tyr Phe Cys  
20 25 30

<210> 89  
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<212> PRT  
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<220>  
<223> human group 1 consensus framework L4

<400> 89  
Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg  
1 5 10

<210> 90  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> hTNF40 framework L4

<400> 90  
Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg  
1 5 10

<210> 91  
<211> 30  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human group 1 consensus framework H1

<400> 91  
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
1 5 10 15  
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr  
20 25 30

<210> 92  
<211> 30  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> hTNF40 framework H1

<400> 92  
Gln Ile Gln Leu Val Gln Ser Gly Pro Glu Leu Lys Lys Pro Gly Glu  
1 5 10 15  
Thr Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Val Phe Thr  
20 25 30

<210> 93  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human group 1 consensus framework H2

<400> 93  
Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly  
1 5 10

<210> 94  
<211> 14  
<212> PRT  
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<220>  
<223> hTNF40 framework H2

<400> 94  
Trp Val Lys Gln Ala Pro Gly Lys Ala Phe Lys Trp Met Gly  
1 5 10

<210> 95  
<211> 32  
<212> PRT  
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<220>  
<223> human group 1 consensus framework H3

<400> 95  
Arg Val Thr Ile Thr Arg Asp Thr Ser Thr Ser Thr Ala Tyr Met Glu  
1 5 10 15  
Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg  
20 25 30

<210> 96  
<211> 32  
<212> PRT  
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<220>  
<223> hTNF40 framework H3

<400> 96  
Arg Phe Ala Phe Ser Leu Glu Thr Ser Ala Ser Thr Ala Phe Leu Gln  
1 5 10 15  
Ile Asn Asn Leu Lys Asn Glu Asp Thr Ala Thr Tyr Phe Cys Ala Arg  
20 25 30

<210> 97  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human group 1 consensus framework H4

<400> 97  
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
1 5 10

<210> 98  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human group 1 consensus framework H4

<400> 98  
Trp Gly Gln Gly Thr Thr Leu Val Thr Val Ser Ser  
1 5 10

<210> 99  
<211> 324  
<212> DNA  
<213> murine

<220>  
<221> CDS  
<222> (1) ... (324)  
<223> mouse hTNF40 light chain variable domain

<400> 99  
gac att gtg atg acc cag tct caa aaa ttc atg tcc aca tca gta gga 48  
Asp Ile Val Met Thr Gln Ser Gln Lys Phe Met Ser Thr Ser Val Gly  
1 5 10 15

gac agg gtc agc gtc acc tgc aag gcc agt cag aat gtg ggt act aat 96  
Asp Arg Val Ser Val Thr Cys Lys Ala Ser Gln Asn Val Gly Thr Asn  
20 25 30

gta gcc tgg tat caa cag aaa cca gga caa tct cct aaa gca ctg aat 144

Val	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Lys	Ala	Leu	Asn	
35							40						45			
tac tcg gca tcc ttc cta tat agt gga gtc cct tat cgc ttc aca ggc															192	
Tyr	Ser	Ala	Ser	Phe	Leu	Tyr	Ser	Gly	Val	Pro	Tyr	Arg	Phe	Thr	Gly	
50							55						60			
agt gga tct ggg aca gat ttc act ctc acc atc agc act gtg cag tct															240	
Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Thr	Val	Gln	Ser	
65							70						75			80
gaa gac ttg gca gag tat ttc tgt cag caa tat aac atc tat cct ctc															288	
Glu	Asp	Leu	Ala	Glu	Tyr	Phe	Cys	Gln	Gln	Tyr	Asn	Ile	Tyr	Pro	Leu	
85							90						95			
acg ttc ggt gct ggg acc aag ctg gag ctg aaa cgt															324	
Thr	Phe	Gly	Ala	Gly	Thr	Lys	Leu	Glu	Leu	Lys	Arg					
100							105									
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<211> 354																
<212> DNA																
<213> murine																
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<221> CDS																
<222> (1) ... (354)																
<223> mouse hTNF40 heavy chain variable domain																
<400> 100																
cag atc cag ttg gtg cag tct gga cct gag ctg aag aag cct gga gag															48	
Gln	Ile	Gln	Leu	Val	Gln	Ser	Gly	Pro	Glu	Leu	Lys	Lys	Pro	Gly	Glu	
1				5				10					15			
aca gtc aag atc tcc tgc aag gct tct gga tat gtt ttc aca gac tat															96	
Thr	Val	Lys	Ile	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Val	Phe	Thr	Asp	Tyr	
20				25				30								
gga atg aat tgg gtg aag cag gct cca gga aag gct ttc aag tgg atg															144	
Gly	Met	Asn	Trp	Val	Lys	Gln	Ala	Pro	Gly	Lys	Ala	Phe	Lys	Trp	Met	
35				40				45								
ggc tgg ata aac acc tac att gga gag cca ata tat gtt gat gac ttc															192	
Gly	Trp	Ile	Asn	Thr	Tyr	Ile	Gly	Glu	Pro	Ile	Tyr	Val	Asp	Asp	Phe	
50				55				60								
aag gga cga ttt gcc ttc tct ttg gaa acc tct gcc agc act gcc ttt															240	
Lys	Gly	Arg	Phe	Ala	Phe	Ser	Leu	Glu	Thr	Ser	Ala	Ser	Thr	Ala	Phe	
65				70				75					80			
ttg cag atc aac aac ctc aaa aat gag gac acg gct aca tat ttc tgt															288	
Leu	Gln	Ile	Asn	Asn	Leu	Lys	Asn	Glu	Asp	Thr	Ala	Thr	Tyr	Phe	Cys	
85				90				95								
gca aga ggt tac cgg tcc tat gct atg gac tac tgg ggt caa gga acc															336	
Ala	Arg	Gly	Tyr	Arg	Ser	Tyr	Ala	Met	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	

100 105 110  
tca gtc acc gtc tct tca 354  
Ser Val Thr Val Ser Ser  
115

<210> 101  
<211> 84  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Ompa oligonucleotide adaptor

<221> CDS  
<222> (29) ... (0)  
<223> 67

<400> 101  
tcgagttcta gataacgagg cgtaaaaaat gaaaaagaca gctatcgcaa ttgcagtggc 60  
cttggctctg acgtacgagt cagg 84

<210> 102  
<211> 67  
<212> DNA  
<213> Artificial Sequence

<220>  
<221> CDS  
<222> (2) ... (40)

<221> CDS  
<222> (43) ... (66)

<223> IGS cassette-1

<400> 102  
g agc tca cca gta aca aaa agt ttt aat aga gga gag tgt ta atg aag 48  
Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys Met Lys  
1 5 10 15

aag act gct ata gca att g 67  
Lys Thr Ala Ile Ala Ile  
20

<210> 103  
<211> 69  
<212> DNA  
<213> Artificial Sequence

<220>  
<221> CDS  
<222> (2) ... (43)

<221> CDS

<222> (45) ... (68)

<223> IGS cassette-2

<400> 103

g agc tca cca gta aca aaa agt ttt aat aga ggg gag tgt taa  
Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys \*  
1 5 10

43

a atg aag aag act gct ata gca att g  
Met Lys Lys Thr Ala Ile Ala Ile  
15 20

69

<210> 104

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (2) ... (43)

<221> CDS

<222> (57) ... (80)

<223> IGS cassette-3

<400> 104

g agc tca cca gta aca aaa agc ttt aat aga gga gag tgt tga  
Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys \*  
1 5 10

43

ggagggaaaaa aaa atg aag aaa act gct ata gca att g  
Met Lys Lys Thr Ala Ile Ala Ile  
15 20

81

<210> 105

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (2) ... (43)

<221> CDS

<222> (57) ... (80)

<223> IGS cassette-4

<400> 105

g agc tca cca gta aca aaa agt ttt aat aga gga gag tgt tga  
Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys \*  
1 5 10

43

cgaggattat ata atg aag aaa act gct ata gca att g 81  
Met Lys Lys Thr Ala Ile Ala Ile  
15 20

<210> 106  
<211> 30  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human group 3 consensus framework H1

<400> 106  
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser  
20 25 30

<210> 107  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human group 3 consensus framework H2

<400> 107  
Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser  
1 5 10

<210> 108  
<211> 32  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human group 3 consensus framework H3

<400> 108  
Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln  
1 5 10 15  
Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg  
20 25 30

<210> 109  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human group 3 consensus framework H4

<400> 109  
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
1 5 10

<210> 113  
<211> 214  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CDP870 Light chain mature protein sequence

<400> 113  
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
1 5 10 15  
Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asn Val Gly Thr Asn  
20 25 30  
Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Ala Leu Ile  
35 40 45  
Tyr Ser Ala Ser Phe Leu Tyr Ser Gly Val Pro Tyr Arg Phe Ser Gly  
50 55 60  
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro  
65 70 75 80  
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ile Tyr Pro Leu  
85 90 95  
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala  
100 105 110  
Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly  
115 120 125  
Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala  
130 135 140  
Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln  
145 150 155 160  
Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser  
165 170 175  
Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr  
180 185 190  
Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser  
195 200 205  
Phe Asn Arg Gly Glu Cys  
210

<210> 115  
<211> 229  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CDP870 Heavy chain mature protein sequence

<400> 115  
Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15  
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Tyr Val Phe Thr Asp Tyr

20	25	30
Gly Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Met		
35	40	45
Gly Trp Ile Asn Thr Tyr Ile Gly Glu Pro Ile Tyr Ala Asp Ser Val		
50	55	60
Lys Gly Arg Phe Thr Phe Ser Leu Asp Thr Ser Lys Ser Thr Ala Tyr		
65	70	75
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys		
85	90	95
Ala Arg Gly Tyr Arg Ser Tyr Ala Met Asp Tyr Trp Gly Gln Gly Thr		
100	105	110
Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro		
115	120	125
Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly		
130	135	140
Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn		
145	150	155
Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln		
165	170	175
Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser		
180	185	190
Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser		
195	200	205
Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr		
210	215	220
His Thr Cys Ala Ala		
225		

<210> 116  
 <211> 1477  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> CDP870 nucleic acid sequence (sense strand)

<400> 116  
 atgaaaaaga cagctatcg aattgcagtgc cttggctgt tttcgctac cgtacgc 60  
 gctgacattc aaatgaccca gagccatcc agcctgagcg catctgtagg agaccgggtc 120  
 accatcaattt gtaaagccag tcagaacgtt ggtactaacg tagcctggta tcagcaaaaa 180  
 ccaggtaaag ccccaaaagc cctcatctac agtgcccttt tcctctatacg tgggttacca 240  
 tacaggttca gcgatccgg tagtggtaact gatttcaccc tcacgacttag tagctccag 300  
 ccagaagatt tcgcccactt ttactgtcaa cagtataaca tctacccact cacattcgg 360  
 cagggtacta aagttagaaat caaaacgtacg gtagccccc catctgtttt catctcccg 420  
 ccatctgtat agcagttgaa atcttggaaact gcctctgtt gttgcctgtt gaataacttc 480  
 tatcccagag aggc当地aaat acatgttggaaat gtggataacg cccttccaaatc gggtaactcc 540  
 caggagatgt tcacagagca ggacagcaag gacagcacctt acagcctcag cagcaccctg 600  
 acgctgagga aagcagacta cgagaaacac aaagcttacg cctgcgaatg caccatcag 660  
 ggcctgagct caccagtaac aaaaagctt aatagaggag agtgggttggagg aggaaaaaaa 720  
 aatgaagaaa actgttatag caattgcagt ggcgcgtact gtttcgcac ccgtggcgca 780  
 agctgaggtt cagctggctg agtcaggagg cggcttcgtt cagcctggcg gatcaactgag 840  
 attgtccctgt gctgcattt gttacgttcc cacagactat ggaatgaatt gggtagaca 900  
 ggcccccggga aagggcctcg aatggatggg ttggattat acttacattt gagagcctat 960  
 ttatgctgac agcgtcaagg cgagattcac gttctctcta gacacatcca agtcaacacgc 1020  
 atacctccaa atgaatacgcc tgagagcaga ggacaccgca gtgtactatt gtgcttagagg 1080

atacagatct tatgccatgg actactgggg ccagggtacc ctagtcacag ttccttcagc 1140  
ttccaccaag ggcccatcg tcttccccct ggcacccctc tccaagagca cctctggggg 1200  
cacagcggcc ctgggtgc tggtaagga ctacttcccc gaaccggta cggtgtcgtg 1260  
gaactcaggc gcccgtacca gcggcgtgca cacctcccg gctgtcctac agtcttcagg 1320  
actctactcc ctcagcagcg tggtgaccgt gcccctccagc agcttggca cccagaccta 1380

catctgcaac gtgaatcaca agcccagcaa caccaaggta cacaagaaag ttgagccaa 1440  
atcttgac aaaactcaca catgcgcgcgtgatga 1477

<210> 117

<211> 1477

<212> DNA

<213> Artificial Sequence

<220>

<223> CDP870 nucleic acid sequence (anti-sense strand)

<400> 117

tcatcacgcg gcgcatgtgt gagtttgtc acaagatttg ggctcaactt tcttggac 60  
cttgggtttt ctgggtttgt gattcacgt gcagatgtag gtctgggtgc ccaagctgt 120  
ggagggcacg gtcaccacgc tgctgagggta gttagtctt gaggactgta ggacagccgg 180  
gaaggtgtgc acgcccgtgg tcagggcgc tgagttccac gacaccgtca ccgggtcggg 240  
gaagtagtcc ttgaccaggc agcccaggc cgctgtgccc ccagagggtc tcttggagga 300  
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